ERIC Document Resume	See Instruction Sheet	DATE OF RESUME 8/14/65	DATE RECEIVED

A. PUBLICATION DATA

1. ERIC NUMBER	2. ORIGINATOR CONTROL NO(S).	3. IDENTIFICATION NO.	DO NOT WRITE IN SPACE BELOW
ED000527	7278		

4. AUTHOR(S): Warren, Jonathan R. and Heist, Paul A.

5. TITLE OF DOCUMENT ABSTRACTED: Personality Attributes of Gifted College Students

6. PUBLICATION TITLE: N.A.

7. EDITOR(S): N.A.

8. PLACE OF ORIGIN
ORG. University of California
ST.
CITY, STATE Berkeley, California
TELE. EXT.
INST/LOC CODE

9. PUBLISHER OR SOURCE: University of California

10. VOL.	11. PAGES	12. MO./YR.	13. TOTAL PP.
N.A.	N.A.	59	

MICROFILM COPY AVAILABLE
YES ☒ NO ☐

COPYRIGHT GRANTED
YES ☐ NO ☒

COPYRIGHT RELEASE FILED
YES ☐ NO ☐

TYPE OF REPORT
PROPOSAL ☐
IN-PROGRESS ☐
FINAL ☒
FOLLOW-UP ☐

OTHER ERIC REFERENCES:

ERIC SATELLITE CODE

B. INDEXING DATA

14. SUBJECT AREA

15. TYPE OF ENDEAVOR: Survey

16. INDEXING TERMS (8-12)

	measurement			
surveys	students			
talent	personality development			

17. ABSTRACT (MAX. 250 WORDS)

An appraisal of major behavioral characteristics of 918 superior college freshmen—all National Merit Scholarship winners or nearwinners—as measured by several assessment instruments, including the Omnibus Personality Inventory (OPI) and the Study of Values (AVL). Findings indicate that the attribute most sharply differentiating the gifted from groups of unselected college freshmen is a strong disposition toward intellectual activity. The gifted are depicited as independent, confident, and generally mature in interactions with the external world.

ERIC No.

18. SOURCE OF ABSTRACT

C. FUNDING DATA

19. SUPPORTING ORGANIZATION	20. DIVISION OR DEPT.	21. CONTRACT NO. / PROJECT NO.
	22. TOTAL COST OF PROJECT	
	23. DURATION OF PROJECT	U.S. Department of Health, Education, and Welfare Office of Education

ERIC Form 1

IV-21

7278

7993
p. 41

Personality Attributes of Gifted College Students

Jonathan R. Warren and Paul A. Heist[1]

Center for the Study of Higher Education

University of California

Education at all levels has been permeated in recent years with a tremendous concern for the adequate development of superior and gifted students. Most of the attention and effort has been directed toward identifying such students and devising educational processes suited specifically to their needs. Relatively few attempts have been made to re-examine personality attributes of such individuals with the improved assessment devices of the post World War II period. This study represents an appraisal of some major behavioral characteristics, as measured by objective personality inventories, of a large number of post-adolescent youth of exceptional mental ability.

U. S. DEPARTMENT OF HEALTH, EDUCATION AND WELFARE
Office of Education

This document has been reproduced exactly as received from the person or organization originating it. Points of view or opinions stated do not necessarily represent official Office of Education position or policy.

ED000527

Early studies of intellectually gifted children were undertaken, at least in part, to examine the notion then commonly held that extraordinary mental proficiency is usually accompanied by physical frailty, early and drastic decline of abilities, insanity, or other compensating deficiencies. These misconceptions were readily refuted by the work of Terman (Terman & Oden, 1947) and Hollingworth (1926). But early success in establishing that certain traits are not characteristic of the gifted has not been followed by much success in determining what is consistently characteristic of the gifted other than exceptional intellectual ability.

The term gifted is often used to include persons having exceptional musical, artistic, or other creative talent. In this paper the term will refer only to the intellectually superior as they are identified by a test of scholastic aptitude.

The level of scholastic aptitude, or the intelligence quotient (IQ), above which the classification of giftedness is considered appropriate is somewhat arbitrary, depending largely on the preference of the person applying the term and the context in which it is to be used. While Terman's lower limit was a Stanford-Binet IQ of 140, some investigators have set it at 120 or even lower. A majority seem to have settled on 130 as a useful lower limit for defining intellectual giftedness. Estimates derived from a conversion of College Entrance Examination Board Scholastic Aptitude Test (SAT) scores to Stanford-Binet IQ's indicate that the sample presently to be described has a mean S-B IQ approximating 150 with a minimum at about 130.[2]

Previous investigations have shown that the highly intelligent, as compared with those of average intelligence, are generally taller, heavier, physically healthier, and perhaps mentally healthier (Hollingworth, 1926; Hollingworth & Rust, 1937; Terman & Oden, 1947). The most frequently discovered psychological attribute of the intellectually gifted has been a general self-sufficiency, a greater degree of self-direction, independence, or autonomy. Such behavior has been apparent both in intellectual pursuits and in more overt forms of behavior (Barrett, 1957; Lewis, 1943; Lightfoot, 1951; Wrenn, Ferguson, & Kennedy, 1936). Perhaps closely related is a tendency to dominate in social situations or, more accurately, a tendency not to be submissive. Here a sex difference has been noted, the lack of submissiveness being more characteristic of gifted men than of gifted women. (Hollingworth & Rust, 1937; Lightfoot, 1951; Wrenn, et al., 1936).

The greater cognitive scope and mental facility of the gifted seem to give them a greater command of themselves and their world, allowing them to be more adventurous, more creative, to engage in more varied and more difficult activities, and to do so more intensely and more persistently than the average person (Brandwein, 1955; Lightfoot, 1951). Notwithstanding their greater breadth of activity and more extensive contact with the external world, people of superior intellect are generally less tense, less anxious, and less given to feelings of insecurity and depression than are people in general (Hollingworth & Rust, 1937; Zeaman, 1958).

The broader, deeper interests of the gifted are directed toward

themselves as well as toward the external world. Gifted men, particularly, engage in more self-evaluation and self-criticism and tend more toward social withdrawal than do ordinary people. Gifted women are closer to the norm in both these respects (Lightfoot, 1951; Wrenn, et al., 1936).

The large volume of material published in the last thirty or forty years about the intellectually superior may suggest that more is known about the gifted than is briefly indicated above. To be sure, other correlates of intellectual superiority, of a biographical or sociological nature, have been established: the proportions of gifted students from the various socio-economic strata, the cultural levels of their homes, the steps in their educational progress, the vocations they entered, etc. But as to generalizations about their way of thinking, their basic attitudes, and their manifest behavioral characteristics, there appears to be relatively little that can be concluded from the professional literature.

Generalized descriptions tend to obscure the heterogeneity of behavior known to exist among the gifted. Conversely, the diversity of the total population of gifted may not permit further generalizations than have already been made. The data to be presented here were approached as a source of confirmation of what presumably has been established regarding gifted students in general and as a guide to further, more sharply delineated studies of gifted students.

Sample

In the spring of 1956, high school principals across the nation nominated 58,000 senior students to take the College Entrance Examination

Board Scholastic Aptitude Test (SAT) in a competition for college scholarships administered by the National Merit Scholarship Corporation. These 58,000, selected as the best senior students in their respective schools, constituted 6 per cent of the national population of high school seniors. Slightly over 5,000 of the highest scoring students, drawn proportionately from the various states according to their high school senior populations, were subsequently rated with respect to rank in class, motivation, breadth of interests, accomplishments, personality, and leadership potential. These ratings were based on autobiographical reports and high school principals' recommendations. Using the SAT scores and the various ratings as predictors, a selection committee then designated as National Merit Scholars those 556 contestants considered to have the greatest promise for college achievement. The remainder of the 5,000 finalists were awarded Certificates of Merit (Holland & Stalnaker, 1958).

Through an agreement with the National Merit Scholarship Corporation, the Center for the Study of Higher Education at the University of California initiated a longitudinal study of the entire group of National Merit Scholars and a 10 per cent sample of the Certificate of Merit winners (near-winners). (In this analysis the National Merit Scholarship winners and near-winners collectively will be termed NMS students.) Over 90 per cent of this total group agreed to participate in the study, 659 men and 259 women constituting the final sample.

659
259
918

The estimated mean and minimum IQ's of 150 and 130 clearly justify designating these students as gifted. Unfortunately, the sample cannot be considered representative of the total population of intellectually gifted students of the same grade or age level. The initial selection of 58,000

contestants was the result of principals' and teachers' recommendations, which undoubtedly did not include the nonachieving gifted student. There is also evidence that the final selection was colored by an overemphasis on numerical as opposed to verbal abilities. The number of subjects who scored at the top of the numerical subtest was over thirty times as great as the corresponding number for the verbal subtest (99 as opposed to 3). Further, the number of subjects who entered scientific or technological fields in college was over three times the number who entered other fields. Whether the apparent bias in favor of quantitative skills and inclinations is an artifact of the particular aptitude test used or is a real characteristic of the sample introduced at some point in the selection procedure cannot be established. There is reason to believe, though, that systematic biases favoring certain types of intellectually gifted students (e. g., those with outstanding high school records and those oriented toward quantitative pursuits) operated in the selection of the sample.

Procedure

Among the several assessment instruments administered to the subjects were the Omnibus Personality Inventory (OPI) (Heist & Williams, 1957), administered in the summer of 1956, preceding entrance into college, and the Study of Values (AVL) (Allport, Vernon, & Lindzey, 1951), administered in the spring of 1957.

Personality Inventory

The OPI consists of an assemblage of personality scales that were considered to be particularly pertinent to the study of college students.[3] The scales were drawn from other inventories and from research by other agencies. Brief descriptions of the attributes that the scales primarily

measure and statements of the origins of the scales are given below.

The Thinking Introversion (T) Scale of Evans and McConnell (1941) was incorporated into the OPI unchanged with respect to content but with the original Likert response form replaced by a True-False form. High scorers show a liking for reflective thought, particularly thought of an abstract nature, and are interested in ideas and concepts; they tend to be less influenced by external conditions and commonly professed ideas than are low scorers.

The Complexity (Co) Scale, adapted from the work of Barron (1953), distinguishes between people who perceive and react to complex aspects of their environment and those who react to more simple stimulus patterns. High scorers are more independent, liberal, critical, unconventional, and potentially are more original and creative; they welcome the new and different in their experiences. Low scorers tend to be compliant, conservative, accepting of authority and tradition, and simpler in their organizations of perceptions.

The Originality (O) Scale, adapted from research by Barron (1955) and Gough at the University of California Institute for Personality Assessment and Research, measures a tendency toward highly organized but individual ways of reacting to the environment. Characteristics of high scorers are independence of judgment, freedom of expression, rebelliousness, rejection of suppression, and novelty of insight.

The Responsibility (R) Scale was initially developed by Gough, McClosky, and Meehl (1952) to measure responsibility as it pertains to social activity. High scorers tend to be thorough, planful, conscientious, socially progressive, and concerned with social and moral issues.

The Ego-strength (Es) Scale was originally developed by Barron (1953) to measure some aspects of the ability to function effectively as a person. The version of the scale used here is a short form of the original (31 rather than 60 items). High scorers are more alert, adventurous, determined, independent, outspoken, persistent, and resourceful than are low scorers.

The Social Maturity (SM) Scale, derived from research with the Authoritarian scale of Adorno, Frenkel-Brunswik, Levinson, & Sanford (1950), but scored in the reverse direction (nonauthoritarianism), measures the more indirect, more personality-centered elements of the authoritarian construct, avoiding most items having a political or ideological connotation. This is also a short form of the originally developed SM scale. High scorers, in contrast to low scorers, are more culturally sophisticated and more confident as well as less compulsive, less submissive, less conventional, and less punitive.

The original Authoritarian F scale, 45/40 form, was also included in the OPI but with two of the original thirty items removed and its responses altered from the Likert to the True-False form. This Authoritarian (F) Scale correlates highly but negatively with the SM Scale, as would be expected. High scorers on the F scale have an in-group orientation and tend to be repressive, rigid, conventional, emotionally cold, and prejudiced.

The Impulse Expression (IE) Scale was developed by Sanford, Webster, & Freedman (1957) at Vassar. High scorers tend to be impulsive, irrepressible, impatient, erratic; low scorers are generally reserved, dignified, cautious, and dutiful, sometimes to the point of being placid or taciturn.

The Social Introversion (SI) Scale was developed by Drake (Drake & Thiele, 1948) using items in the Minnesota Multiphasic Personality Inventory

(MMPI) (Hathaway & McKinley, 1951). High scorers show relatively little active interest in people; low scorers appear to be primarily socially oriented.

Four scales in the OPI, borrowed from the MMPI, measure some aspect of adjustment or maladjustment. They are the Hysteria (Hy), Psychopathic Deviate (Pd), Schizophrenia (Sc), and Hypomania (Ma) Scales.

Study of Values

The second personality inventory, the Allport-Vernon-Lindzey Study of Values (AVL), measures six value orientations (Allport, et al., 1951). The Theoretical orientation characterizes a person with a dominant interest in the discovery of truth, one who is concerned with cognitive approaches to reality and is critical, rational, and given to intellectualizing. (Findings at the Berkeley Center show interest in scientific fields to be a strong correlate of this orientation.) The person high on the Economic scale is interested primarily in the utilitarian and the practical, in the accumulation of material goods and its associated activities. The Aesthetic person places greatest value on form and harmony. His major orientation is toward a pleasing organization of sensory experience, toward the artistic aspects of the environment. The high Social scorer is oriented toward people as such without regard to theoretical, aesthetic, or practical attitudes, which he may regard as cold and inhuman. A person with a Political orientation is not necessarily interested in the field of politics but chiefly in power and influence over others and in the struggle and competition with which power is commonly associated. The person high on the Religious scale is something of a mystic, seeing the highest values in a search for the meaning of life and in comprehension of the cosmos as a whole.[4]

The AVL items are forced choice alternatives, high scores on any one scale necessitating low scores on some other scale or scales. The six scores can therefore be interpreted only in relation to each other; a high score indicates only that that orientation is more highly valued than those showing lower scores.

Results

Comparison Groups of College Students

The Omnibus Personality Inventory was administered in 1957 to samples of unselected freshmen at two branches of the University of California (UC). Scores from the two samples were combined to provide a single reference group more broadly representative of college students than either sample would have been alone. Study of Values scores for half the subjects in one of the UC samples were obtained at the same time. AVL scores of two other college groups were also available for comparative purposes. The Study of Values manual provides means and standard deviations for a large sample of college students of both sexes, and Lehman and Ikenberry (1959) report AVL scores for a random sample of Michigan State University (MSU) freshmen of 1958. Since students in all four undergraduate years are represented in the data presented in the manual and since the testing reported in the manual was done at least seven years before the NMS group was tested, the California and Michigan samples probably provide more appropriate comparisons for this study.

The mean aptitude of the Michigan sample is slightly higher than the national college freshman mean. The California freshmen, however, show a mean aptitude score a full standard deviation above the national mean. Although more than the usual amount of overlap therefore exists between the distributions of aptitude of the UC and NMS samples, their means are still sufficiently different, about a standard deviation and a half, to permit meaningful group comparisons.

Results on the Personality Scales

Means and standard deviations for males in the NMS and UC samples on the various personality scales in the OPI are shown in Table 1. Similar data for women are shown in Table 2.

Insert Tables 1 and 2 about here

The males in the scholarship sample are differentiated fairly sharply from the California male freshmen on all the scales except the four "adjustment" scales of the MMPI. Results for the women are very similar with the exception of the mean scores on the Social Introversion (SI) scale, which do not differentiate the very bright women from the less bright.

For both sexes, the two scales showing the greatest differences between the gifted and the unselected students are Thinking-Introversion (T) and Responsibility (R). Interest in reflective thought, in working with ideas and concepts, and intellectual independence, all of which contribute to high T scores, are characteristics of the intellectually superior that have been noted before (Hildreth, 1952; Terman & Oden, 1947). Conscientiousness, thoroughness of planning, and concern with moral issues, traits measured by the R scale, have been less clearly indicated by previous research with the gifted.

The gifted students observed by Brandwein (1955) showed a considerably higher degree of persistence and more thorough planning than did the less bright. Hollingworth (1926) noted an early concern and continued interest of the gifted in moral issues. Both of these rather distinct traits contribute to high R scores. A difficulty of interpretation is introduced, however, by the combination, in Brandwein's subjects and in the subjects

of the present study, of high intelligence and unusual success in school. The thoroughness and persistence that seem characteristic of these students could therefore be considered functions of achievement, a learned and rewarded form of behavior, rather than of intellectual superiority as such. A heightened moral awareness may or may not be contributing to the higher R scores of the gifted; its influence cannot be separated from that of conscientiousness and thoroughness.

Again for both sexes, the differences between the two groups with respect to Originality (O) support the observation of Hildreth (1952) and others (Hollingworth, 1926; Lightfoot, 1951; Terman & Oden, 1947) that the gifted show unusual originality, imagination, inventiveness, and resourcefulness. Other correlates of high O scores, freedom of expression, rebelliousness, and lack of suppression (Heist & Williams, 1957), have not commonly been ascribed to the gifted. Moreover, their low Impulse Expression (IE) scores seem, at first glance, to contradict the picture of the gifted implied by high O scores as freely expressive and unsuppressed individuals. The scores on these two dimensions, however, are not actually contradictory. People with high IE scores tend to be impulsive, irrepressible and ready to express their impulses in overt action when the content of the impulse tends to be emotional or affective. The freedom of expression indicated by high O scores is essentially of a cognitive or attitudinal nature. (There is a positive correlation between the IE scale and neurotic patterns on the Minnesota Multiphasic Personality Inventory. Correlations between O and IE are virtually zero.) The high O scores and low IE scores of the gifted, then, in comparison with more typical students, show the gifted to be more original, imaginative, rebellious, and expressive with

respect to cognitive material, but somewhat more reserved and cautious with respect to affective material. To the limited extent that human behavior can be dichotomized, the gifted are intellectually and conceptually imaginative and "impulsive;" emotionally they are more controlled. From the psychoanalytic approach, the gifted seem to "operate" more at the ego level than at the id level.

The studies of both Hollingworth (1926) and Terman (Terman & Oden, 1947), as well as others (Lightfoot, 1951; Wrenn, et al., 1936), strongly suggest that the greater intellectual powers of the gifted, in comparison with average students, permit them to react to their environments with greater imagination, resourcefulness, and flexibility, to be less bound by conventional modes of reacting, and to have greater confidence in their own ability to cope with their environments. The results on the Social Maturity (SM) and Authoritarian (F) scales confirm this view. In addition to greater maturity and less authoritarianism, scores on these scales indicate greater flexibility and less compulsiveness and conventionality in the NMS subjects than in the UC subjects. The higher SM scores of the gifted indicate more sophistication and greater self-confidence as well.

The distinctive performance of the gifted subjects on the SM and F scales are noteworthy for a more general reason. These two scales, more than any others, denote what a number of personality theorists would consider a basic personality dimension. The more advanced psychological development of the gifted, indicated by results on these scales, and the correspondingly greater potential for growth and positive change may, as much as superior mental ability, provide the basis for superiority both in achievement and in more general forms of behavior in an academic environment.

Two more scales add elements to the picture of the personality organization of the gifted that complement what has gone before. The higher Ego-Strength (Es) scores of the NMS subjects suggest that they operate at a higher level of personal effectiveness and, again, that they are more self-confident, resourceful, and independent than the less bright. Their higher Complexity (Co) scores indicate, once more, greater intellectual independence, a tendency toward original, unconventional ways of responding to the environment, and as well, greater tolerance for ambiguity and greater potential for creativity.

The intellectual rebelliousness, the experimenting attitude toward ideas, the freedom to express somewhat deviate forms of thinking, characteristics associated with high O scores; the intellectual independence and affinity for scholarly pursuits of those scoring high on T; the ego strength, potential for creativity, and associated qualities just mentioned; all these, added to the psychological maturity indicated by the Sm and F scales, describe a personality "structure" and a way of thinking which would be highly conducive to intellectual achievement.

The only marked sex difference is found on the Social Introversion (SI) scale. The lower SI scores of the gifted men, compared with university freshmen, indicate a greater interest in people and less of a tendency to withdraw from social contact. No such difference appears between gifted and more typical college women.

The last four scales in Tables 1 and 2, taken from the MMPI, all measure some aspect of maladjustment. For men, the NMS subjects as a group score lower on all four scales than do other university freshmen, the differences being significant at the .05 level or better. For women, although the means of the NMS group are slightly lower than corresponding means of

the comparison group, the only significant difference is on the Psychopathic Deviate (Pd) scale. Scores on this group of MMPI scales indicate clearly that the gifted students of both sexes in this sample have no higher incidence of maladjustment than do unselected university freshmen. In fact, they suggest the contrary. The original selection procedure, however, may have operated to exclude from the sample gifted students who would show evidence of some emotional disturbance or maladjustment, thus biasing these results somewhat toward an overestimation of the mental health of the gifted.

Results on the Study of Values

Means and standard deviations of scores on the Allport-Vernon-Lindzey Study of Values (AVL) for the NMS students and for two other contemporary samples of college freshmen, as well as norms from the AVL manual, are presented in Tables 3 and 4

Because of the interdependence of scores on the six AVL scales, tests of significance were not applied to the differences between groups on individual scales. Standard deviations have been included in Tables 3 and 4 to permit a superficial evaluation of the relative magnitudes of the differences observed. A statistical comparison (discriminant function analysis) of the total sets of six value scores for the NMS and MSU groups confirms the impression that these two profiles are significantly different. Interpretation of the differences between all four profiles is facilitated by reference to the complete profiles presented in Figures 1 and 2.

Insert Tables 3 and 4 and Figures 1 and 2 about here

For both sexes, the profiles diverge most sharply on the Theoretical, Economic, and Aesthetic scales. The gifted students value the Theoretical and Aesthetic orientations relatively higher and the Economic, or utilitarian, relatively lower than do the students in the comparative samples. The only exception appears between the Theoretical scores of NMS and UC men, which are virtually equal. Here, though, the high scores of the men in the UC sample may be attributed to their high level of aptitude and a large proportion of science majors found in the sample. No undergraduate sample presented in the manual approaches the mean of 48 established by the NMS men.

The gifted, then, take greater interest than do the more typical students in cognitive and intellectual pursuits. They are more concerned with harmony and form in sensory experience and have a greater appreciation for the artistic. These increased Theoretical and Aesthetic values appear in relation to a decreased interest in the utilitarian and practical.

While the comparisons just stated hold equally well for both sexes, the sex differences that appear within the comparative groups are also present in the NMS sample. The unselected males of all the comparative samples place the three values on which the major differences occur in the decreasing order of Theoretical, Economic, Aesthetic. The gifted males order them Theoretical, Aesthetic, Economic. For the unselected women, no consistent ordering of these three values appears. The gifted women, in contrast to the men, value the Aesthetic orientation slightly higher than the Theoretical, while sharply rejecting Economic interests.

Differences on the other three scales, Social, Political, and Religious, between gifted and unselected students are slight but provide some information when considered in conjunction with other measures. For both

sexes, the lower Political scores, indicating relatively little value placed on a power orientation, find support in the differences obtained on the measures of authoritarianism (SM and F scales).

Scores on the AVL Social scale indicate that gifted college students of both sexes may be slightly less socially oriented than are unselected college students of the same sex. The OPI Social Introversion (SI) scale, however, indicates the reverse, particularly among the men. The apparent contradiction may be due to depression of the AVL Social scores by the strong Theoretical orientation of the men, while the depressing effect of the women's high scores may have operated on Economic more than Social scores. Among males, then, the Economic orientation seems to take precedence over the Social orientation, while the reverse seems true for the women.

Among these six interdependent scales, the Religious scores are often the ones depressed by high Theoretical or Aesthetic values. Yet the gifted of both sexes score as high, or higher, on the Religious scale as do any of the groups used here for comparison while scoring high on the Theoretical and Aesthetic scales as well. The extensive religious interests and commitments observed in the NMS students are clearly evident in the results of this paper-and-pencil test.

Discussion

Integration of some of the OPI and AVL results brings sharply into focus a major conclusion of the study. Accompanying the high scholastic aptitude of the gifted is a strong attraction to intellectual activity combined with high levels of aesthetic awareness and appreciation.

Both the Complexity (Co) scale of the OPI and the Aesthetic scale of the AVL, which correlate about 0.4, deal with the organization of experience. High Co scores, exhibited by the gifted of both sexes, indicate a preference for complex stimulus patterns and an inclination and ability to deal imaginatively and adequately with apparent disorder. High Aesthetic scores, exhibited particularly by the gifted women, indicate a receptive orientation toward sensory experiences and possibly a predilection for their harmonious organization. The major difference between the constructs the two scales are purported to measure is in the cognitive approach to the organization of sensory experience measured by the Complexity scale and the more affective approach measured by the Aesthetic scale. The mean scores on these two scales, with support from the mean Theoretical scores, indicate that many gifted women value both approaches, while the gifted men place greater emphasis on the intellectual or cognitive approach.

Research on a number of student samples (Heist, Matsler, McConnell, & Williams, in press; McConnell & Heist, 1959) has shown that high scorers on the Aesthetic scale are characterized by more than the traits attributed to them by the manual. High Aesthetic scores have repeatedly proved to be a strong correlate of scholastic and intellectual interests; the Aesthetic scale correlates with Thinking Introversion at a higher level than does the Theoretical scale. This orientation, often more than the Theoretical, denotes a set of attitudes which serves as a strong component of intellectualism. A combination of high Aesthetic and high Theoretical scores is even more indicative of a strong intellectual orientation. One wonders whether the intellectual potential indicated by the combination of strong Aesthetic and Theoretical orientations in the women of the sample will lead to intellectual and academic productivity or will remain undeveloped in the current cultural environment.

A reservation with regard to the differences between gifted and non-gifted concluded from the foregoing should be repeated. The gifted students who furnished the data which permitted the delineation of these differences are a select group of gifted, chosen partly because they possess desirable characteristics other than high academic aptitude. Criteria of sociability, responsibility, and emotional stability, in addition to achievement and aptitude, entered to some extent into their selection. Further, high ability plus achievement is not a sine qua non for act re, operative giftedness, and generalizations arrived at from patterns of mean scores are not necessarily typical of any single individuals.

That personality characteristics other than high academic aptitude do distinguish the intellectually gifted from the general population seems clear. The results presented here for a large sample of contemporary youth generally confirm characteristics of the gifted previously reported. More detailed knowledge of the ways nonintellectual attributes operate within the ranks of the gifted and differentially between gifted and nongifted may result from study of selected subgroups of gifted. One should ask whether the theoretical orientation of the gifted, for example, is uniformly high, regardless of field of study, be it engineering, a theoretical science, or the humanities. One also wonders what other qualities differentiate the individuals of high ability having a utilitarian orientation from those with a theoretical orientation. Are the effects of high intellectual ability nonlinear, as Hollingworth has repeatedly proposed, the most desirable correlates occurring in a moderately high rather than an extremely high range of ability? These and other questions await further research.

Summary

Although considerable interest has been centered in recent years on ways to ensure that intellectually gifted youth will develop their capabilities to the fullest, relatively little is known of the underlying personality characteristics common to the gifted. The study here reported was a re-evaluation, using objective personality inventories, of previously reported psychological attributes of the gifted and an attempt to identify additional personality characteristics that differentiate the gifted from the nongifted.

The sample studied consisted of 918 college freshmen of both sexes selected by the National Merit Scholarship Corporation from among the top 5 or 6 per cent of the national population of high school seniors. The primary criterion for selection was promise of success in college. Estimated mean and minimum Stanford-Binet IQ's of the subjects are 150 and 130, permitting them to be classified as gifted within a commonly used definition of the term. The term gifted is here applied to those persons scoring unusually high on a standardized test of scholastic aptitude and having shown outstanding promise of success in college.

The attribute that most sharply differentiates the gifted of both sexes, as defined in this study, from groups of unselected college freshmen is a strong disposition toward intellectual activity. This can be described more explicitly as a liking for reflective and abstract thought; interest in ideas and conceptualization; a rational, cognitive approach to reality; and a positive, functional approach to scholarly pursuits. A second major differentiation, somewhat more pronounced for the women, appears in what seems to be a perceptual variable. The subjects of this

study possess a stronger aesthetic orientation than is commonly found. The majority of them react preferentially to the artistic rather than utilitarian components in their environments.

Other differences on the two personality inventories, mostly confirmative of previous research, depict the gifted as independent, confident, and generally mature in their interactions with the external world. Compared to the normative groups, they are more complex in both their perceptions and reactions. They are less authoritarian and less rigid, to the extent that many are free to become "risk-takers" in the world of ideas. Most of them also react with greater originality, imagination, and resourcefulness to the stimulation they receive.

Although intellectually imaginative, critical, somewhat rebellious, and free to express themselves, the gifted are neither as emotionally expressive nor as impulsive as are the students in the comparative samples. This repression of affective behavior, however, does not produce social withdrawal. The gifted men, in fact, appear more socially inclined than do unselected college men. For neither sex does a higher incidence of emotional disturbance or adjustment difficulties appear than is shown by the general college population.

Among the gifted, the women appear much more like the men with respect to most of the personality traits measured than is true in more general college samples. As with other college students, however, the gifted women place greater value, relative to other measured values, on an aesthetic approach to experience than do gifted college men. Again as in groups of more typical college students, the gifted women place greater emphasis on social values than on utilitarian values, while the reverse is true for the men.

The procedures used in selecting the gifted sample limit somewhat the applicability of the conslusions. Studies of more restricted subgroups of comparable ability levels should be informative and valuable.

References

Adorno, T. W., Frenkel-Brunswik, Else, Levinson, O. J., & Sanford, R. N. The authoritarian personality. New York: Harper, 1950.

Allport, G. W., Vernon, P. E., & Lindzey, G. Study of values: a scale for measuring the dominant interests in personality. Cambridge, Mass.: Houghton Mifflin, 1951.

Barrett, H. O. An intensive study of 32 gifted children. Pers. Guid. J., 1957, 36, 192-194.

Barron, F. An ego-strength scale which predicts response to psychotherapy. J. consult. Psychol., 1953, 17, 327-333. (a)

Barron, F. Complexity-simplicity as a personality dimension. J. abn. soc. Psychol., 1953, 48, 163-172. (b)

Barron, F. The disposition toward originality. J. abn. soc. Psychol., 1955, 51, 478-485.

Brandwein, P. F. The gifted student as future scientist. New York: Harcourt-Brace, 1955.

Drake, L. E., & Thiele, W. B., Further validation of the social I.E. scale for the MMPI. J. educ. Res., 1948, 41, 551-556.

Dyer, H. S., & King, R. G. College Board scores: their use and interpretation. Princeton, New Jersey: College Entrance Examination Board, 1955.

Evans, Catherine, & McConnell, T. R. A new measure of introversion-extroversion. J. Psychol., 1941, 12, 111-124.

Gough, H. G., McCloskey, H. & Meehl, P. A personality scale for social responsibility. J. abn. soc. Psychol., 1952, 47, 73-80.

Hathaway, S. R., & McKinley, J. C. Minnesota Multiphasic Personality Inventory Manual (Rev. 1951). New York: The Psychological Corporation, 1951.

Heist, P. A., Matsler, F., McConnell, T. R., & Williams, Phoebe A. Personality characteristics of high ability students attending educational institutions ranked high and low in the production of scholars. J. abn. soc. Psychol., 1960 ~~in press.~~

Heist, P. A. & Williams, Phcebe A. Manual for the Omnibus Personality Inventory. Center for the Study of Higher Education, University of California, Berkeley, California., 1957 (Mimeographed).

Hildreth, Gertrude. Educating gifted children at Hunter College Elementary School. New York: Harper, 1952.

Holland, J. L. & Stalnaker, Ruth C. A descriptive study of talented high school seniors: National Merit Scholars. National Ass. Sec. Sch. Principals Bull., 1958, 42 (242), 9-21.

Hollingworth, Leta S. Gifted children: their nature and nurture. New York: MacMillan, 1926.

Hollingworth, Leta S. & Rust, Metta M. Application of the Bernreuter Inventory of Personality to highly intelligent adolescents. J. Psychol., 1937, 4, 287-293.

Lehman, I. J., & Ikenberry, S. O. A preliminary report: critical thinking, attitudes, and values in higher education. East Lansing, Mich.: Michigan State University, 1959.

Lewis, W. D. Some characteristics of very superior children. J. genet. Psychol., 1943, 62, 301-309.

Lightfoot, Georgia F. Personality characteristics of bright and dull children. Teach. Coll. Contr. Educ., 1951, No. 969.

McConnell, T. R. & Heist, P. A. Do students make the college? College and University. 1959, 34, 442-452.

Sanford, R. N., Webster, H., & Freedman, M. Impulse expression as a variable of personality. Vassar College, Poughkeepsie, New York, 1956 (Mimeographed).

Terman, L. M., & Oden, Melita H. Genetic studies of genius. Vol. IV. The gifted child grows up: twenty-five years' follow-up of a superior group. Stanford, Calif.: Stanford University Press, 1947.

Wechsler, D. The measurement of adult intelligence. (3rd ed.) Baltimore: Williams & Wilkins, 1944.

Wrenn, C. G., Ferguson, L. W., & Kennedy, J. L. Intelligence level and personality. J. soc. Psychol. 1936, 7, 301-308.

Zeaman, Jean B. Some of the personality attributes related to achievement in college: a comparison of men and women students. Diss. Abstr. 1958, 18, 290-291. (abstract).

Footnotes

1. The authors are on the staff at the Center for the Study of Higher Education, University of California, Berkeley, California. Collection and analysis of the data were made possible largely through the efforts of T. R. McConnell, Chairman of the Center.

2. Equipercentile conversions using college populations were made from SAT scores to AGCT scores and from AGCT scores to Wechsler-Bellevue IQ's. Stanford-Binet IQ's were then estimated from comparable Wechsler-Bellevue IQ's given by Wechsler (1944). SAT norms for high school seniors (Dyer & King, 1955) show that the means for the present sample are more than two standard deviations above the national means on both the verbal and numerical subtests. More than 99 per cent of the subjects scored higher than one standard deviation above the means of the two subtests.

3. Drs. John Darley and Martin Weissman originally assembled this omnibus inventory explicitly for use in research on students of superior ability.

4. Correlations between a few OPI and AVL scales are moderately high, but not to the point of curtailing the usefulness of the AVL in adding to a description of gifted students. The OPI Thinking Introversion scale, for example, correlates with the AVL Economic scale from -0.4 to -0.6 for subgroups of NMS students in various fields of study. Correlations of

Thinking Introversion with the AVL Theoretical scale, two scales which may seem to be conceptually related, are low for the men of the sample, varying from 0.1 to 0.2. For women, the correlations between the same two scales are around 0.4. Correlations between Complexity and the AVL Aesthetic scale, for both sexes, approximate a value of 0.4. Intercorrelations for other scales on these two inventories are below 0.3.

Table 1

OPI Scale Means and Standard Deviations for NMS Men

and for Other Male College Freshmen

	NMS (N=659)		UC (N=191)		
Scale	M	SD	M	SD	
T	45.1	8.7	34.2	10.6	*
Co	14.7	3.9	13.2	4.1	*
O	24.9	4.5	22.2	4.8	*
R	41.5	4.3	36.6	8.3	#
Es	22.5	3.1	21.5	3.1	*
SM	36.0	5.4	31.0	6.8	*
F	8.3	4.2	11.3	4.4	*
IE	21.2	6.8	24.2	6.9	*
SI	24.7	9.0	27.2	9.2	*
Hy	20.2	4.1	20.4	4.5	
Pd	21.1	4.1	22.1	4.3	
Sc	26.8	7.1	27.6	7.0	
Ma	20.2	4.2	20.8	3.9	

* $p < .001$

\# Because of the difference in variances of the two groups, a test for significance was not performed.

Table 2

OPI Scale Means and Standard Deviations for NMS Women and Other Female College Freshmen

	NMS (N=259)		UC (N=197)		
Scale	M	SD	M	SD	
T	46.9	7.4	36.5	9.4	*
Co	14.7	3.8	12.8	3.8	*
O	25.6	3.7	23.0	4.3	*
R	42.5	3.9	39.1	5.0	*
Es	22.5	3.1	21.4	3.1	*
SM	35.0	5.1	32.6	6.6	*
F	7.7	4.0	9.5	4.2	*
IE	18.6	7.6	21.4	7.8	*
SI	25.3	8.6	26.4	8.6	
Hy	20.9	3.5	21.9	4.0	
Pd	20.5	3.4	21.6	3.9	*
Sc	26.4	4.9	27.6	5.3	
Ma	19.1	4.1	20.3	4.4	

* $p < .001$

Table 3

AVL Means and Standard Deviations

for NMS Men and for Other Male College Freshmen

	NMS (N=604)		UC (N=82)		MSU (N=256)		General Norms (N=851)	
Scale	M	SD	M	SD	M	SD	M	SD
Th	48.1	8.4	48.8	7.6	44.8	6.6	43.3	7.6
Ec	36.0	8.9	38.8	9.0	43.7	6.4	42.1	9.1
Aes	39.3	10.3	37.3	9.7	31.8	7.2	37.2	9.7
Soc	34.2	7.6	35.4	7.5	35.0	6.2	37.7	7.2
Pol	40.4	7.1	41.5	7.3	42.8	6.0	42.7	6.8
Rel	41.7	11.0	38.1	9.3	41.9	8.3	37.0	10.4

Table 4

AVL Means and Standard Deviations

for NMS Women and for Other Female College Freshmen

	NMS (N=174)		UC (N=59)		MSU (N=197)		General Norms (N=965)	
Scale	M	SD	M	SD	M	SD	M	SD
Th	43.7	8.6	39.1	8.4	39.0	6.9	36.4	7.4
Ec	30.5	7.7	35.1	7.1	38.3	6.6	38.8	7.5
Aes	45.0	9.6	43.0	10.2	38.3	7.1	42.2	8.7
Soc	37.5	7.6	39.5	7.0	39.2	6.7	41.3	7.0
Pol	36.7	6.6	39.2	6.7	39.3	6.3	38.1	6.1
Rel	46.5	9.7	43.8	10.2	45.8	7.7	43.2	10.5

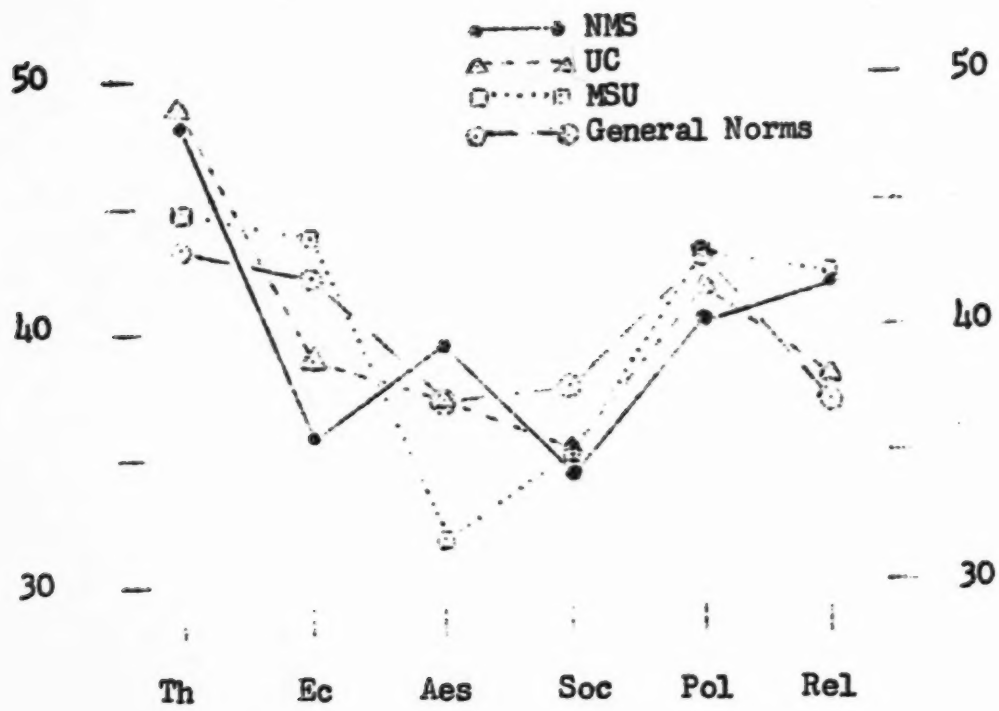

Figure 1. AVL profiles for 4 groups of college men.

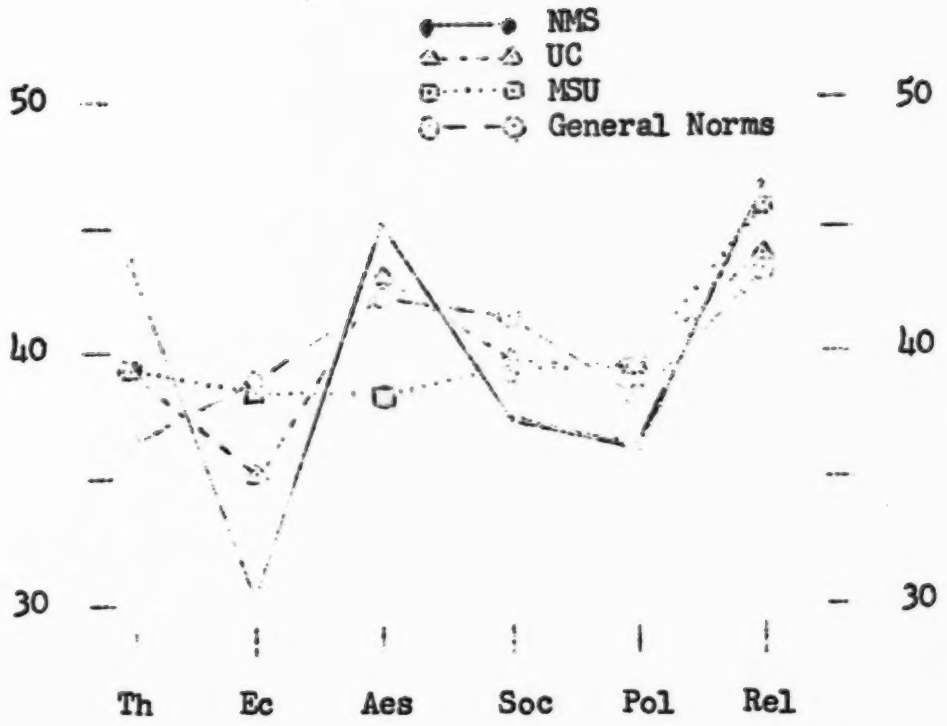

Figure 2. AVL profiles for 4 groups of college women.